The jobs apocalypse: a (very) short history

Mass unemployment induced by AI would be unprecedented

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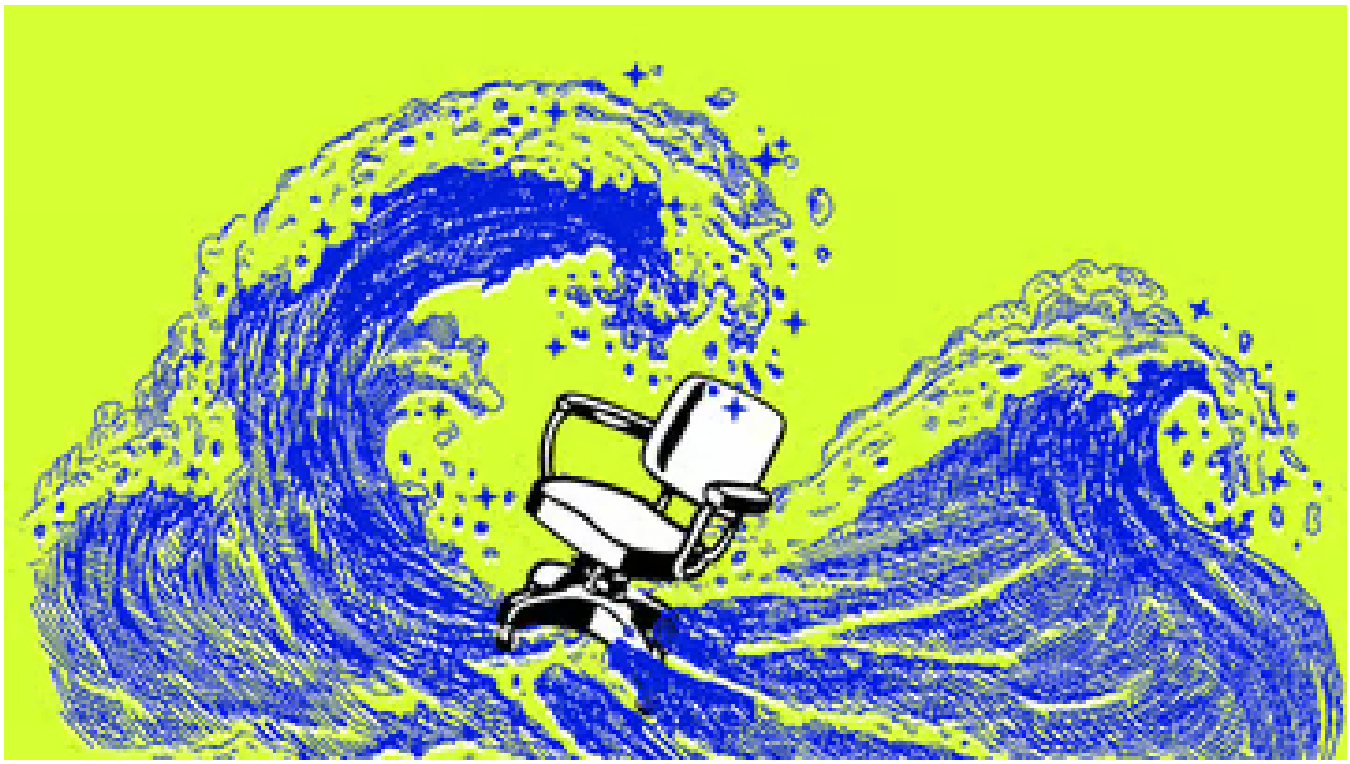

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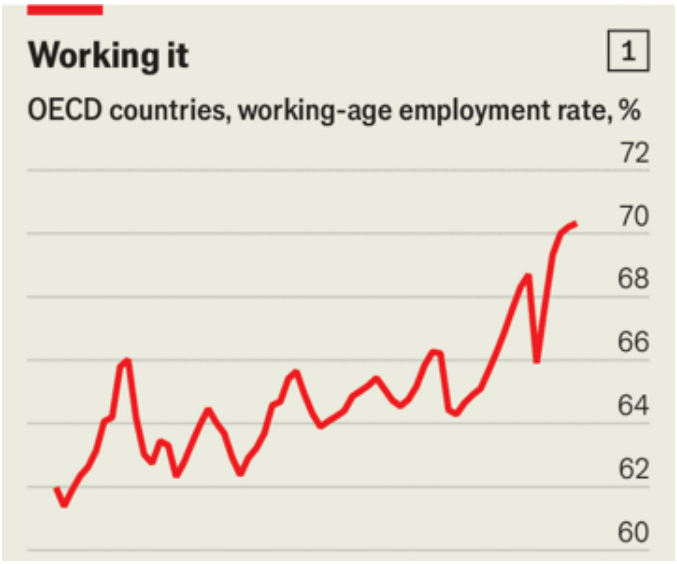
AT NO TIME in polling history have Americans been less optimistic about their long-term employment prospects. The average person believes they have a 22% chance of losing their job in the next five years, according to one survey, a higher share than even during the global financial crisis of 2007-09. The cause of this gloom is artificial intelligence. Nearly one in five American workers recently told another pollster that AI or automation is "very" or "somewhat" likely to replace them.

It isn't just average people who are alarmed. So are the leaders of the very AI companies causing the anxiety. Dario Amodei of Anthropic has warned that AI could push unemployment to 10-20%. Bill Gates, co-founder of Microsoft, said that in an AI world people will not be needed for "most things". Sam Altman, boss of OpenAI, has clocked that talking up the technology's disruptive power is provoking a backlash, and now speaks of "tools to augment and elevate people, not entities to replace them". But even he could not resist mentioning "disruption/significant transition as we switch to new jobs".

Economists are, for a change, far less dismal. They are allergic to the "lump of labour fallacy" which treats the jobs market as static and zero-sum. If technology displaces workers from some occupations, they argue, it enriches others, who then spend their gains on goods and services that create new employment.



The labour market certainly is not cracking yet. The share of the OECD's working-age population with a job keeps breaking records (see chart 1), unemployment across the club of mostly rich countries is just 5%, and America employs more people than ever in "AI-exposed" industries like law. American graduates have been

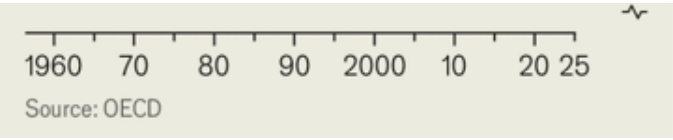


CHART: THE ECONOMIST

struggling since before OpenAI launched ChatGPT in late 2022. Many economists foresee relatively little disruption ahead. Those at America's Bureau of Labour Statistics think the country will add 5.2m jobs between 2024 and 2034, increasing total employment by 3%.

Advances in AI's capabilities could render current data, and extrapolations from this, obsolete. But if this happened, and AI really were to put millions of people out of work, it would be unprecedented in human history. Never have new technologies spread fast enough to make large numbers of people unemployed for a long time. Understanding why may shed light on how this time is—and is not—different.

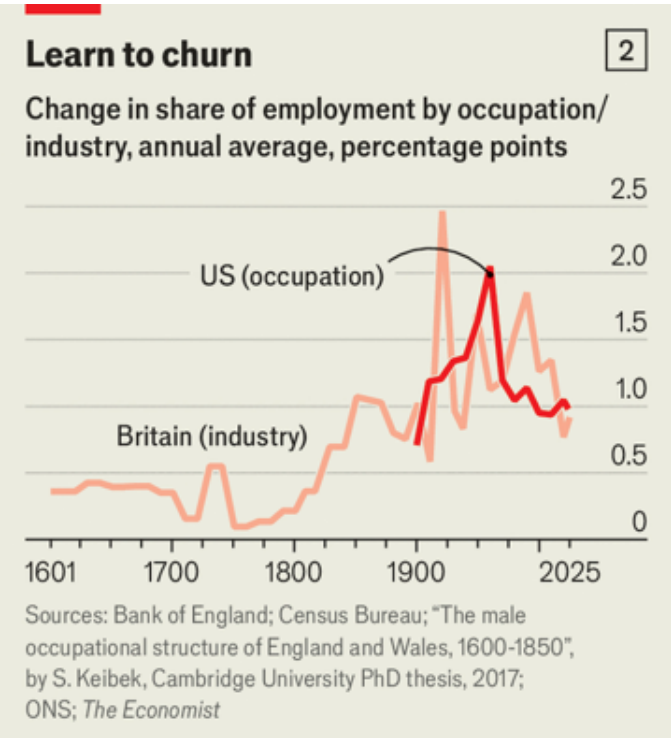
Historical data suggest that technological diffusion always proceeds slowly. In a paper published in 2012 Robert Gordon of Northwestern University found that since 1300, growth of GDP per person at whatever was the world's most sophisticated economy of its time has never exceeded about 2.5% a year. When other countries grew faster than this, they did so by catching up with a richer place that, almost by definition, sparked earlier wealth-creating technological progress. And the fact that growth at the frontier of innovation was slower meant that so was the pace of any job destruction.

Take farming. Although it has undergone monumental technological upheavals over the past millennium, farm employment has changed only slowly. The share of England's labour force in agriculture has been falling steadily since the 16th century without ever collapsing suddenly. The recognisably modern tractor was invented in America at the start of the 20th century, and it took generations rather than years for the agricultural workforce to decline.

Even when job disruption is faster, workers need not suffer. In the middle of the 20th century the first computers, shipping containers and other wonders led Harold Wilson, a British prime minister, to describe the "white heat of technology" burning through Western economies. GDP per person in America, which had by then dislodged Britain as the world's frontier economy, grew by 2.5% a year, the fastest ever for a leading economic power. The level of job disruption, as measured by the share of employment

shifting between industries or occupations, was at times more than twice as high as it is today. Yet many people look back fondly on that era as a time of rising wages, widening opportunity and unpolarised politics.

One instance of technological change has become notorious: the Industrial Revolution in 19th-century Britain. According to some accounts, it was horribly disruptive to workers. James Watt's inventions in the 1760-1780s made steam engines efficient enough to power factories. This led to a period of blistering economic growth that appeared to coincide with stagnation in inflation-adjusted wages. Between 1790 and 1840 these barely budged, even as capitalists earned vast profits.



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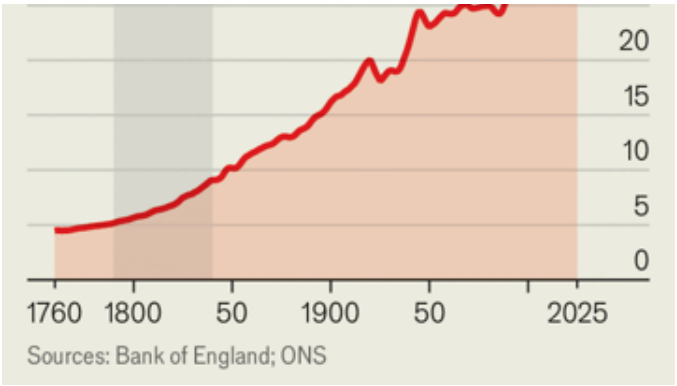
Today's "thought leaders" in Silicon Valley often invoke this pause. It is associated with Friedrich Engels, a capitalist-heir-turned-communist who described it in "The Condition of the Working Class in England", his account of Manchester's slums in the 1840s. Recent scholarship, though, casts doubt on whether "Engels' pause" is a useful blueprint for what AI may have in store for workers.

The composition of British employment saw little churn until the 1850s, and then only as much as it does today (see chart 2). Moreover, if technology destroyed jobs, it created plenty more. Between 1760 and 1860 the number of Britons in work ballooned from 4.5m to 12m. Unemployment generally remained modest (se chart 3).

Wage growth was indeed slow during Engels' pause—but no slower than in the half-century before it. This reflected slow productivity growth in the Industrial Revolution's early years.



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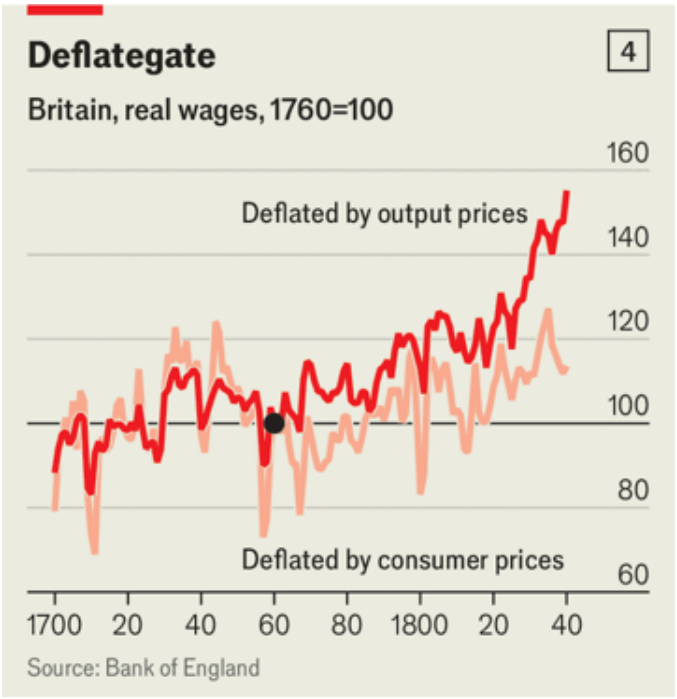
itself a function of the gradual diffusion of Watt's technological breakthroughs. By 1830 only about 160,000 horsepower was in use in the whole of Britain, equivalent to 1,000 typical modern cars. Given rapid population growth in the period, it is a "truly remarkable achievement" that workers' purchasing power grew at all, as Sir Tony Wrigley, a late British demographer, put it. It looks even more remarkable if you adjust wages not by the consumer-price index, as historians tend to, but by the average price of domestically produced output, the "GDP deflator" (see chart 4).



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The gap between the two measures of real wages illustrates a crucial point about the Industrial Revolution. The average employer paid workers reasonably fairly after selling his wares and deducting the cost of materials. He did not profit from exploiting his staff, as Engels supposed. The problem for labourers was less unfair pay than sharp rises in the cost of living. Food prices rose steadily, and sometimes soared, because of war and high tariffs on grain imports. The villains of the Industrial Revolution were politicians, not machines.

This puts a different gloss on the industrial unrest of the period. In the early 19th century textile workers revolted, destroying the power looms they thought would kill their craft. A few years later farm labourers smashed threshing machines across southern England. Historians link such unrest to technological disruption, yet strikes and wrecking are as old as time. In England, riots were less frequent in the early 1800s—the middle of Engels' pause—than later in the century, when real wages were growing strongly.

The Chartists, who secured suffrage and other rights for working men, did not gain ground until wage growth was unpaused in the 1840s.

Nicholas Crafts, an economic historian, summed it up neatly. The Industrial Revolution, he wrote, is "not a template" for "technological change that [boosts] productivity at the expense of a significant …decline in labour's share of national income". In short, those warning of AI-driven mass unemployment are predicting something that has never happened before.

That does not mean it can never happen at all. The first signs would be sharply rising productivity combined with weak real-wage growth in America, the world's frontier economy. This would show up as an increase in GDP per person, above Mr Gordon's ceiling of 2.5%, and a simultaneous jump in corporate profits, reflecting the gains from higher output flowing to capital, not labour. Another signal would be big job losses in lots of industries.

History holds a final lesson. If disruption is coming, it will show up in a recession. Downturns cleanse the economy of unproductive jobs. Companies must make radical changes to survive; weak firms go under; capital and labour moves to more productive ones. Almost all of America's once-routine jobs have vanished during past downturns. Which ones vanish next time will offer a big hint. Until then everyone—including Messrs Amodei, Gates and Altman—will remain none the wiser about the shape of the AI world to come.■

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